Claims

1. A method for detecting events in a system, the method comprising the steps of:

(a) providing a mapping between each of a plurality of groups of
5 possible observable events and one of a plurality of likely corresponding events in said system;

(b) monitoring said observable events and detecting one or more known observable events generated by said system;

(c) determining a mismatch measure between each of the plurality of
10 groups of possible observable events in said mapping and said one or more known observable events using a computer, while disregarding observable events in the groups of possible observable events not determined to be known; and

(d) selecting one or more of said plurality of likely events
15 corresponding to one of said plurality of groups having the smallest mismatch measure.

2. The method of Claim 1 wherein said likely corresponding events comprise problems.

3. The method of Claim 1 wherein said computer-accessible mapping
20 comprises a codebook.

4. The method of Claim 1 wherein said mapping is deterministic.

5. The method of Claim 1 wherein said mapping is probabilistic.

6. The method of Claim 1 wherein said mismatch measure comprises

a Hamming distance.

7.   The method of Claim 1 wherein said mapping is computer accessible.

8.   A method for detecting events in a system, the method comprising the steps of:

(a)   providing a mapping between each of a plurality of groups of possible symptoms and one of a plurality of likely events in said system;

(b)   assigning a value of unknown to all of said possible symptoms in said mapping;

(c)   monitoring said symptoms and detecting one or more known symptoms generated by said system;

(d)   assigning a value of known to said possible symptoms in said mapping corresponding to said one or more known symptoms;

(e)   determining a mismatch measure between each of the plurality of groups of possible symptoms having a value of known in said mapping and said one or more known symptoms using a computer, while disregarding symptoms in the groups of possible symptoms having a value of unknown; and

(f)   selecting one or more of said plurality of likely events corresponding to one of said plurality of groups having the smallest mismatch measure.

9.   The method of Claim 8 further comprising repeating steps (c)-(f) periodically.

10.   The method of Claim 8 further comprising repeating steps (b)-(f)

periodically.

11.   The method of Claim 8 wherein step (b) comprises assigning a high loss probability value to said symptoms.

12.   The method of Claim 8 wherein step (d) comprises assigning a low
5   loss probability value to said symptoms.

13.   The method of Claim 8 wherein said likely events comprise problems.

14.   The method of Claim 8 wherein said computer-accessible mapping comprises a codebook.

10   15.   The method of Claim 8 wherein said mapping is deterministic.

16.   The method of Claim 8 wherein said mapping is probabilistic.

17.   The method of Claim 8 wherein said mismatch measure comprises a Hamming distance.

18.   The method of Claim 8 wherein said mapping is computer
15   accessible.

19.   A method for detecting problems in a system that generates a plurality of symptoms, the method comprising the steps of:

(a)   providing a computer-accessible codebook comprising a matrix of values each corresponding to a mapping between one of a plurality of said
20   possible known and unknown symptoms and one of a plurality of likely events in said system;

(b)   associating a loss probability of about 100% with all unknown symptoms in the codebook;

(c)   monitoring a plurality of symptom data values representing a plurality of known symptoms generated by said system over time;

(d)   decreasing the loss probability for symptoms in the codebook that have been received;

5   (e)   determining a mismatch measure between each of a plurality of groups of said values in said codebook and said plurality of known symptom data values through the use of a computer, said mismatch measure taking into account the loss probability of symptoms; and

(f)   selecting one of said plurality of likely events corresponding to one 10   of said plurality of groups having the smallest mismatch measure.

20.   A apparatus for detecting events in a system, the apparatus comprising:

a storage device for storing a computer-accessible mapping between each of a plurality of groups of possible observable events and one of a plurality of 15   likely corresponding events in said system;

means for monitoring said observable events and detecting one or more known observable events generated by said system;

means for determining a mismatch measure between each of the plurality of groups of possible observable events in said mapping and said one or more 20   known observable events using a computer, while disregarding observable events in the groups of possible observable events not determined to be known; and

means for selecting one or more of said plurality of likely events corresponding to one of said plurality of groups having the smallest mismatch

measure.

21. A computer program product in computer-readable media for detecting events in a system using a computer-accessible mapping between each of a plurality of groups of possible observable events and one of a plurality of

5 likely corresponding events in said system, the computer program product comprising instructions for causing a computer to:

monitor said observable events and detect one or more known observable events generated by said system;

determine a mismatch measure between each of the plurality of groups of

10 possible observable events in said mapping and said one or more known observable events using a computer, while disregarding observable events in the groups of possible observable events not determined to be known; and

select one or more of said plurality of likely events corresponding to one of said plurality of groups having the smallest mismatch measure.

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